Nitsch Engineering

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January 23, 2014

Mr. Kenneth Motta
Chairman
New Bedford Conservation Commission
New Bedford City Hall
133 William Street
New Bedford, MA 02744

RE: Nitsch Project #8483
Cardinal Place
Review Letter
New Bedford, MA

Dear Mr. Motta:

This letter is in regard to the proposed Cardinal Place residential subdivision project located off of Swallow Street in New Bedford, Massachusetts. Nitsch Engineering has reviewed the following revised items submitted as part of the proposed project:

- Response to Comments Letter (with Attachments A-E), prepared by Prime Engineering, Inc., dated January 8, 2014;
- Plan set entitled, "Cardinal Place, Definitive Plan for a Residential Subdivision, Ava's Way, New Bedford, Massachusetts," prepared by Prime Engineering, Inc., revised January 7, 2014; and
- Hydrologic Exhibit, prepared by prepared by Prime Engineering, Inc., dated December 30, 2013.

Nitsch Engineering's current comments are provided below (with reference to the original comment number):

1. The Applicant has provided a Hydrologic Exhibit that shows that the estimated seasonal high groundwater elevations in the test pits indicated groundwater flowing to the south and away from Sassaquin Pond. The groundwater elevations provided are based on one (1) day of testing and the groundwater elevation and flow direction can vary based on seasonal/precipitation fluctuations. However, the Applicant has designed the proposed stormwater management system for discharges to a critical area, including increased pollutant removal and groundwater recharge.

3. The revised drainage design collects the runoff from the westernmost portion of Ava's Way in a trench drain and treats it using a Stormceptor 450i prior to discharging into a shallow infiltration basin (Pond 3P). The Applicant intends to make Ava's Way a public roadway and should confirm with the Department of Public Infrastructure that they can maintain the trench drain (versus a standard catch basin).

   The soil test pit nearest the new basin, TP-5, determined that estimated seasonal high groundwater is at elevation 91.2 feet. This is less than a foot below the bottom elevation (92.0 feet) of the proposed basin and does not meet the minimum 2-foot offset requirement set forth by Massachusetts Department of Environmental Protection (MassDEP).

6. The Applicant has revised the plans to eliminate the urban tree box filter from the proposed development. The current treatment drain (Catch Basins → Stormceptor → Leaching Pits) provides adequate treatment for stormwater discharges to critical areas. Based on the HydroCAD, the leaching pits surcharge the Stormceptor in the 10- and 100-year design storms. We recommend that the Applicant include the Stormceptor that is designed for submerged conditions in the proposed design.

   Operation and maintenance requirements for the Stormceptors should be added to the Stormwater Operation and Maintenance Plan.

9. The Applicant indicated that the plans have been revised to provided one foot of freeboard. However, in the 100-year design storm, there is less than 1 foot of freeboard. Additionally, the ponding elevation in the 100-year storm (94.69 feet) is higher than the elevation of the emergency spillway (94.5 feet), which is not modeled in HydroCAD. Nitsch Engineering recommends that the elevation of the spillway be increased so that there is no flow over in the 100-year storm design.

10. The revised detail for the stormwater basin located south of the proposed cul-de-sac includes a natural soil bottom with plantings and a native seed mix. Although this will enhance pollutant removal for the basin, a bioretention basin also includes subsurface components including 24-36 inches of specialized filtering soil mix. Due to the estimated seasonal high groundwater elevation, there is not enough separation between seasonal high groundwater and the bottom of the basin to provide the required soil media in a bioretention basin. Therefore, the basin will be an infiltration basin only.

11. Based on the calculations provided, the sizing for the proposed roof infiltration systems appears to be adequate for the proposed roofs. However, the revised Grading and Drainage Sheet does not provide connections between the proposed house roofs, infiltrators, and outfalls.

12. There appears to be two (2) separate Long-Term Pollution Prevention and Operation and Maintenance Plans – a "Long Term Pollution Prevention Plan (Permanent Operation and Maintenance Program) document that was previously submitted and the notes included on Erosion Control Detail Sheet (Sheet ER2) of the plan set. The information from these should be combined so that there is a comprehensive document that includes source control measures, stormwater maintenance procedures, the spill prevention and response plan, and snow and ice removal procedures.

    There needs to be a mechanism in place that will communicate to future property owners that pesticides and fertilizers are prohibited. In Nitsch Engineering's opinion, a condition in the Order of Conditions will not convey that and we recommend that the Applicant have future homeowners agree to this requirement during the purchase process and return a signed notice to the Conservation Commission.

14. The revised Drainage Summary Tables are not consistent with HydroCAD Report. Based on the HydroCAD model, there appears to be an increase in peak runoff rates being discharged to Swallow Street (Sum 3).

17. The revised plans include work within the 25-foot wetland buffer, including installation of perimeter erosion controls, loaming and seeding associated with the large basin spillway, and construction of the outfall for the newly-proposed smaller basin near Swallow Street.

19. A riprap detail for stone at the outlets was added to the revised detail sheet; however, the following reference to Massachusetts Department of Transportation (MassDOT) specifications for stone for pipe ends should be provided: "12-inch minimum diameter stone riprap (MHD M2.02.3)."

If you have any questions, please call us at 617-338-0063.

Very truly yours,

Nitsch Engineering, Inc.

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